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HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER	
HUANG, WEN WU	
ART UNIT	**PAPER NUMBER**
2618	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/502,502	LU ET AL.	
	Examiner	Art Unit	
	Wen W. Huang	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 January 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-21 are pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 2 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Leung et al. (US PUB NO. 2003/0087653 A1; hereinafter "Leung 653)

Regarding **claim 1**, Leung 653 teaches a method for providing a real-time broadcast service in a mobile communication system (see para. [0038] and [0039]), the mobile communication system comprising a radio access network (see fig. 5, para. [0069]) and a plurality of mobile terminals (see fig. 1, component 106), wherein the radio access network has an original service hierarchy (see para. [0039]); the method comprising:

linking the real-time broadcast service (content server) to the radio access network (see fig. 5, components 326, 324 and 320; para. [0070], lines 4-5); and

adding a broadcast service hierarchy into the radio access network (see para. [0036], lines 3-7; introducing broadcast service), assigning downlink special broadcast resources for the broadcast service hierarchy (see para. [0048], lines 2-5 and para. [0049], lines 7-11; assigning downlink resource for broadcast), and broadcasting the real-time broadcast service to the mobile terminals through the downlink special broadcast resources (see para. [0049] and para. [0060], lines 4-6); and

any of the mobile terminals (see Leung 653, fig. 1, component 106; para. [0060], lines 4-6; interested mobiles) communicating with radio access network using uplink and/or downlink resources of the original service hierarchy (see para. [0069], lines 3-5), receiving the real-time broadcast service using the downlink special broadcast resource (see para. [0035], lines 15-23), and switching between the original service hierarchy and the broadcast service hierarchy (see para. [0035], lines 18-20; "tune in" to the broadcast service hierarchy).

Regarding **claim 2**, Leung 653 also teaches the method according to claim 1, wherein the process of linking the real-time broadcast service to the radio access network comprising:

transmitting content information of the real-time broadcast service to an information transmitting server (see para. [0072], lines 1-2), and accessing the content information of the real-time broadcast service to the radio access network by the information transmitting server (see para. [0072], lines 3-4).

Regarding **claim 21**, Leung 653 teaches a mobile communication system for providing a real-time broadcast service, comprising:

a radio access network (see fig. 5 and fig. 1, component 104), having an original service hierarchy for providing an original service (see para. [0039] and [0040]), and having a broadcast service hierarchy for providing the real-time broadcast service (see para. [0047]; HSBS), wherein downlink special broadcast resources are assigned for the broadcast service hierarchy to broadcast the real-time broadcast service (see para. [0048], lines 2-5 and para. [0049], lines 7-11; assigning downlink resource for broadcast; frequency/channel assignment for HSBS); and

a plurality of mobile terminal (see fig. 1, component 106), wherein each of the mobile terminals communicates with the radio access network using uplink and/or downlink resources of the original service hierarchy (see para. [0043], lines 1-6), receives the real-time broadcast eservice using the downlink special broadcast resources (see para. [0060], lines 4-6), and switch between the original service hierarchy and the broadcast service hierarchy (see para. [0035], lines 18-20; "tune in" to the broadcast service hierarchy).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 3-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leung 653 as applied to claim 1 above, and further in view of Nakagawa et al. (US. 6256,508 B1; hereinafter "Nakagawa") and Leung (US PUB NO. 2003/0078044 A1; hereinafter "Leung 044")

Regarding **claim 3**, Leung 653 also teaches the method according to claim 1, wherein the downlink special broadcast resources are downlink special carrier frequencies (see Leung 653, para. [0048]; HSBS frequency assignment), the method further comprising:

when switching to the broadcast service hierarchy (see Leung 653, para. [0060], lines 4-6; interested mobiles), the mobile terminal staying in a cell of the broadcast service hierarchy (see Leung 653, para. [0043], lines 1-2) and monitoring paging procedure of the cell in the broadcast service hierarchy (see Leung 653, para. [0107], lines 10-11).

Leung 653 is silent to teaching that comprising:

dividing the broadcast service hierarchy into cells, the adjacent cells employ different scrambling codes, and defining multiple cells into a location area;

when switching to the broadcast service hierarchy, the mobile terminal controlling handoff of the cell. However, the claimed limitation is well known in the art as evidenced by Nakagawa and Leung 044.

In the same field of endeavor, Nakagawa teaches a method comprising:

dividing the broadcast service hierarchy into cells (see Nakagawa, fig. 1, components A-G), the adjacent cells employ different scrambling codes (see Nakagawa, fig. 4; "ss method for local area broadcasting"; col. 6, lines 20-22), and defining multiple cells into a location area (see Nakagawa, fig. 4, "wide area broadcasting").

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Leung 653 and the teaching of Nakagawa in order to avoid RF interference (see Nakagawa, col. 2, lines 23-25).

The combination of Leung 653 and Nakagawa is silent to teaching that, when switching to the broadcast service hierarchy, the mobile terminal controlling handoff of the cell. However, the claimed limitation is well known in the art as evidenced by Leung 044.

In the field of endeavor, Leung 044 teaches a method comprising under the broadcast service hierarchy mode, the mobile terminal solely controlling handoff of the cell (see Leung 044, para. [0057], lines 1-10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Leung 653 and Nakagawa with the teaching of Leung 044 in order to implement handoff in a broadcasting system (see Leung 044, para. [0011]).

Regarding **claim 4**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method according to claim 3, further comprising:

setting a broadcast channel for broadcasting corresponding cell information (see Leung 653, para. 0053) and paging channel for a paging mobile terminals in the cell of broadcast service hierarchy (see Leung 044, para. [0057], lines 1-10).

Regarding **claim 5**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method according to claim 4, wherein said cell information includes location area code and paging channel configuration information of the cell in the broadcast service hierarchy, and carrier frequencies, scrambling codes (see Leung 653, para. [0051], lines 12-15 and 19-25), Random Access Channel (RACH), an AICH public channel relating to RACH and Forward Access Channel (FACH) of the adjacent cells in the original service hierarchy (see Leung 653, para. [0053]).

Regarding **claim 6**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method according to claim 3, wherein the scrambling codes in the broadcast service hierarchy and those in the original service hierarchy are either the same or different; the cells of the broadcast service hierarchy and those of the original service hierarchy are either superposed or not (see Nakagawa, fig. 1 and fig. 4).

Regarding **claim 7**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method according to claim 3, wherein

the handoff includes location update (see Leung 653, para. [0107], lines 5-6) which is triggered when the mobile terminal switches between the broadcast service

hierarchy and the original service hierarchy (see Leung 653, para. [0107], lines 10-11), and when the location area of the mobile terminal changes in the broadcast service hierarchy (see Leung 653, para. [0107], lines 3-4).

Regarding **claim 8**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method according to claim 7, wherein the process of triggering location update when the location area changes in the broadcast service hierarchy comprising:

the mobile terminal obtaining information of cells in the original service hierarchy from the broadcast channel of the broadcast service hierarchy, the cells in the original service hierarchy are adjacent to the current cell of the broadcast service hierarchy (see Leung 653, para. [0043], lines 9-14), finding a cell in the original service hierarchy where the mobile terminal can stay, and sending a random access request utilizing the Random Access Channel (RACH) in the cell of the original service hierarchy (see Leung 044, para. [0057], lines 1-10); after receiving AICH information from the cell of the original service hierarchy, the mobile terminal tuning the receiving frequency to the downlink carrier frequency, starting search and synchronization for the current cell of the broadcast service hierarchy (see Leung 044, para. [0058]), meanwhile sending a message containing location update information to the radio access network utilizing the uplink carrier frequency of the original service hierarchy, and waiting to receive a location update confirming message at the current cell of the broadcast service hierarchy (see Leung 044, para. [0054]).

Regarding **claim 9**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method according to claim 3, wherein the process of monitoring paging in the broadcast service hierarchy mode comprising:

the radio access network selecting a cell in a corresponding location area according to the received location information of the mobile terminal, and sending downlink paging information according to the carrier frequency of the broadcast service hierarchy or the carrier frequency of the original service hierarchy (see Leung 653, para. [0107], lines 10-13).

Regarding **claim 10**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method according to claim 3, further comprising:

after switching from the broadcast service hierarchy to the original service hierarchy, the mobile terminal making a reply or initiating a call in the original service hierarchy (see Leung 653, para. [0107], lines 10-13).

Regarding **claim 11**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method according to claim 10, wherein the process of making a reply or initiating a call further comprising:

sending information of the adjacent cells in the original service hierarchy utilizing the broadcast channel of the broadcast service hierarchy (see Leung 653, para. [0108]).

Regarding **claim 12**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method according to claim 3, wherein

the mobile terminal shares a set of receiving system and synchronizing system with other mobile terminals in the broadcast service hierarchy and the original service hierarchy (see Leung 653, para. [0053]).

Regarding **claim 13**, the combination of Leung 653, Nakagawa and Leung 044 also teaches the method according to claim 3, wherein

the mobile terminal utilizes a different receiving system, and shares a set of synchronizing system with other mobile terminals in the broadcast service hierarchy and the original service hierarchy (see Leung 653, para. [0053]).

3. Claims 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leung 653 (and US. 5,101,501 incorporated by Leung 653) as applied to claim 1 above, and further in view of Nakagawa.

Regarding **claim 14**, Leung 653 teaches the method according to claim 1, wherein the downlink special broadcast resources are downlink special scrambling codes (see Leung 653, para. [0049], line 7-11; a given Walsh code);

the method further comprising:

superposing the locations of cells of the broadcast service hierarchy over those of the original service hierarchy so as to form the structure of the cell of the original service hierarchy plus the cell of the broadcast service hierarchy (see Leung 653, fig. 1),

the working mode of mobile terminal keeps unchanged for the original service, pilot channel of the original cell is shared and real-time broadcast service is supported under both idling mode and connecting mode (see Leung 653, para. [0053]).

Leung 653 is silent to teaching that comprising:

wherein the cells utilize the same downlink special scrambling code and a same special broadcast channel code for transmitting real-time broadcast information. However, the claimed limitation is well known in the art as evidenced by Nakagawa.

In the same field of endeavor, Nakagawa teaches a method wherein the cells utilize the same downlink special scrambling code and a same special broadcast channel code for transmitting real-time broadcast information (see Nakagawa, fig. 4, col. 6, lines 10-15, "wide area broadcasting");

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Leung 653 and the teaching of Nakagawa in order to avoid RF interference (see Nakagawa, col. 2, lines 23-25).

Regarding **claim 15**, the combination of Leung 653 and Nakagawa also teaches the method according to claim 14, wherein the process of assigning downlink special scrambling codes in the broadcast service hierarchy comprising adding a scrambling operation using the downlink special scrambling codes in the base station sender of

each cell in the original service hierarchy (see Leung 653, para. [0055]), wherein the information of the broadcast service hierarchy and that of the original service hierarchy either share the same power amplifier or utilizes respective power amplifiers (see Leung 653, para. [0053] and Nakagawa fig. 14A, component 143).

Regarding **claim 16**, the combination of Leung 653 and Nakagawa also teaches the method according to claim 15, wherein process of the sender includes performing modulation and spectrum spreading for the original service and real-time broadcast service (see Nakagawa fig. 14A, component 143); the modulation and spectrum spreading for the original service includes source encoding, channel encoding, Quaternary Phrase-Shift Keying (QPSK), spectrum spreading and scrambling the spectrum spread results utilizing the down-link scrambling codes of each cell for the original service (see Leung 653, para. [0040]); the modulation and spectrum spreading for the real-time broadcast service includes source encoding, channel encoding, QPSK, spectrum spreading and scrambling the spectrum spread results utilizing the down-link special scrambling codes for the real-time broadcast service (see Leung 653, para. [0053]).

Regarding **claim 17**, the combination of Leung 653 and Nakagawa also teaches the method according to claim 14, wherein the demodulation unit of RAKE receiver of the mobile terminal adopts downlink special scrambling codes for specially receiving the real-time broadcast service; channel decoding and source decoding is implemented

respectively for the original service and real-time broadcast service after the signals pass the RAKE receiver; the channel code of RAKE receiver is the special broadcast channel code, namely the downlink special scrambling code (see Leung 653, para. [0043], lines 9-13; and see U.S. Pat. No. 5,101,501 incorporated by Leung 653; fig. 2, components 40 and 42).

Regarding **claim 18**, the combination of Leung 653 and Nakagawa also teaches the method according to claim 14, wherein said structure of the cell of the original service hierarchy plus the cell of the broadcast service hierarchy is that range and location division of the cell of the original service hierarchy plus the broadcast service hierarchy is the same as that of the original service macro cell coving hierarchy in which the mobile network is covered by the macro cells (see Leung 653, fig. 1).

Regarding **claim 19**, the combination of Leung 653 and Nakagawa also teaches the method according to claim 14, wherein the mobile terminal supports real-time broadcast service under both idle mode and connecting mode (see Leung 653, para. [0110]), the method further comprising:

keeping the mobile terminal under idle mode for the original service when the mobile terminal switches to the broadcast service hierarchy (see Leung 653, para. [0110]);

when the mobile terminal is located in a macro cell, according to the channel estimation result for the public pilot frequency of this cell and the channel estimation

result for the public pilot frequency of one or multiple adjacent cells with powerful signals, merging the received signals of multi cells and demodulating the signals on special broadcast channel (see Leung 653, para. [0043]);

the mobile terminal selecting and reselecting cells, implementing location update and receiving paging information in terms of the process of original service (see Leung 653, para. [0107]);

when the mobile terminal is located in a micro cell or a pico cell, according to the channel estimation result for the public pilot frequency of one or multiple adjacent cells with powerful signals, merging the received signals of multi cells and demodulating the signals on special broadcast channel (see Leung 653, para. [0043], lines 9-13);

the mobile terminal selecting and reselecting cells, implementing location update and receiving paging information in terms of the process of original service (see Leung 653, para. [0107] and para. [0040]).

Regarding **claim 20**, the combination of Leung 653 and Nakagawa also teaches the method according to claim 14, further comprising:

the mobile terminal evaluating the interference value to a service channel caused by the downlink special scrambling codes according to the demodulated special broadcast channel data and the information of channel transmission condition, scrambling code and channel code, and subtracting this interference value from the received signal (see Leung 653, para. [0043]; and see U.S. Pat. No. 5,101,501 incorporated by Leung 653; fig. 2, component 48).

Response to Arguments

Applicant's arguments filed 10/3/06 have been fully considered but they are not persuasive.

In response to Applicant's argument that Leung 653 fails to anticipate, teach or suggest "adding a broadcast service hierarchy into the radio access network" or "assigning downlink special broadcast resource for the broadcast service hierarchy" because Leung 653 is directed to problems quite different from the present application and Leung 653 does not teach that only downlink resources are needed for transmitting real-time broadcast service (see Remark filed 10/03/06, page 16), the Examiner respectfully disagree.

More specifically, the Examiner submits that Leung 653 is directed to enable a large number of mobile terminals to receive broadcast service (see Leung 653, para. [0034]). Thus, Leung 653 is directed to a similar problem as described by the instant application. Furthermore, the Examiner submits that nowhere in the claims suggests that only downlink resources are needed for transmitting real-time broadcast service. The specification of the instant application suggests that only downlink resources (i.e. special carrier frequency or scramble code) need to be added to the original service hierarchy to provide real-time broadcast service. However, nowhere in the specification or claims suggest that the downlink resources (i.e. special carrier frequency or scramble code) along by itself is capable of transmitting real-time broadcast service.

Therefore, the Examiner submits that Leung 653 teaches adding a broadcast service hierarchy into the radio access network (see para. [0036], lines 3-7; introducing broadcast service) and assigning downlink special broadcast resources for the broadcast service hierarchy (see para. [0048], lines 2-5 and para. [0049], lines 7-11; assigning downlink resource for broadcast).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen W. Huang whose telephone number is (571) 272-7852. The examiner can normally be reached on 10am - 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

wwh

4/11/07

MATTHEW ANDERSON
SUPERVISORY PATENT EXAMINER